

REMARKS

I. Status Summary

Claims 1-9 are pending in the present application. Claims 1 and 8 have been amended. Therefore, upon entry of this Amendment, Claims 1-9 will be pending. No new matter has been introduced by the present amendment. Reconsideration of the application as amended and based on the remarks set forth hereinbelow is respectfully requested.

II. Claim Rejections Under 35 U.S.C. § 102

Claims 1-5, 8, and 9 stand rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by the publication titled "Assessment of UHF Power Amplifier Linearisation By Measurement and Simulation", Institute of Electrical Engineers (IEE) CPP Conference Paper (1989), by Wilkinson et al. (hereinafter, "Wilkinson"). This rejection is respectfully traversed.

Upon careful consideration and review of Wilkinson, applicants respectfully submit that Wilkinson does not disclose each and every element of the presently claimed subject matter and therefore does not anticipate the presently claimed subject matter. Claim 1 recites a simulation method for determining nonlinear signal distortion in an analog circuit for processing discrete multitone signals (DMT). The simulation method includes applying a discrete multitone signal to the analog circuit, which is to be tested, and to a digital filter. Claim 1 recites that the discrete multitone signal has a large number of uniformly spaced carrier frequencies for data transmission in a predetermined frequency range. The simulation method also includes subtracting the

output signal from the analog circuit, which is to be tested, from the output signal from the digital filter in order to produce a difference signal. Further the simulation method includes adjusting the digital filter until the difference signal is a minimum, with the adjusted digital filter forming an equivalent circuit of the analog circuit. The simulation method also includes applying the discrete multitone signal to the adjusted digital filter, with at least one carrier frequency being suppressed, for measuring the intermodulation product of the adjusted digital filter.

Wilkinson discloses assessment of UHF power amplifier linearization by measurement and simulation. Further, Wilkinson discloses deriving a model that represents amplification modulation (AM)/AM and AM/ phase modulation (PM) non-linear distortion effects. (See last paragraph of page 60, of Wilkinson). AM/AM and AM/PM radio transmission is different than applying a discrete multitone signal to an analog circuit, as required by element (a) of Claim 1. Nowhere does Wilkinson disclose applying a discrete multitone signal to an analog circuit as required by Claim 1.

Further, Wilkinson discloses using a Volterra series model to analyze a circuit to be tested and a third order model for an amplifier. (See last paragraph of page 60, and the left column of page 62). There is no disclosure of obtaining a digital filter as a model for the amplifier by applying a signal to the amplifier, subtracting the output signals of an analog circuit and a digital filter to obtain a difference signal, and adjusting the digital filter until the difference signal is a minimum, as required by elements (b) and (c) of Claim 1.

Element (d) of Claim 1 recites applying the discrete multitone signal to an adjusted digital filter with at least one carrier frequency being suppressed for measuring the intermodulation product of the adjusted filter. An exemplary reason for this step is to determine the intermodulation product of the adjusted digital filter (i.e., the digital model of the analog circuit) for the one carrier frequency which is not present in the discrete multitone signal during the test. In marked contrast, Wilkinson only discloses, for example, that a particular power amplifier (i.e., HPA) can be tested by analyzing the corresponding Volterra series or by applying a series of single-tone transfer function measurements on the power amplifier at a range of different input powers and frequencies. (See the last paragraph of the left column, of page 61, to the second paragraph of the right column, of page 61). There is no disclosure by Wilkinson of applying a discrete multitone signal having a number of uniformly spaced carrier frequencies to a digital filter, wherein the least one of the carrier frequencies is suppressed, as required by element (d) of Claim 1.

For the reasons set forth above, it is respectfully submitted that Wilkinson does not disclose each and every element of the presently claimed subject matter and therefore does not anticipate the presently claimed subject matter. Therefore, applicants respectfully request that the rejection of Claim 1 under 35 U.S.C. §102(b) be withdrawn and the claim allowed at this time.

Claims 2-5 depend from Claim 1. Therefore, the comments presented above with respect to Claim 1 apply equally to Claims 2-5. Thus, it is respectfully submitted that the rejection of Claims 2-5 under 35 U.S.C. §102(b) be withdrawn for the reasons provided for Claim 5 and the claims allowed at this time.

Claim 8 recites a test arrangement for implementing a method similar to the method recited by Claim 1. The features recited by Claim 8 are similar to the features of Claim 1 that are not taught by Wilkinson. For example, Claim 8 recites a signal generator for producing a discrete multitone signal. Further, for example, Claim 8 recites adjustable modeling filters which are connected in parallel with an associated analog circuit element, with the signal inputs of the modeling filters and the signal inputs of the analog circuit elements being connected to the signal generator. In addition, for example, Claim 8 recites subtraction circuits, which each subtract an output signal from a modeling filter from an output signal of the associated analog circuit element in order to form a difference signal. Claim 8 also recites an adjustment circuit, which compares the difference signals with a nominal value and adjusts the modeling filters until the difference signals match the nominal value. Because Claim 8 recites features that distinguish from Wilkinson similar to Claim 1, the comments presented above with respect to Claim 1 apply to Claim 8. Thus, it is respectfully submitted that the rejection of Claim 8 under 35 U.S.C. §102(b) be withdrawn for the reasons provided for Claim 1 and the claim allowed at this time.

Claim 9 depends from Claim 8. Therefore, the comments presented above with respect to Claim 8 apply equally to Claim 9. Thus, it is respectfully submitted that the rejection of Claim 9 under 35 U.S.C. §102(b) be withdrawn for the reasons provided for Claim 8 and the claim allowed at this time.

### III. Claim Rejections Under 35 U.S.C. § 103

Claims 6 and 7 stand rejected by the Examiner under 35 U.S.C. §103(a) as obvious by Wilkinson in view of U.S. Patent No. 6,295,343 to Hjartarson et al. (hereinafter, "Hjartarson"). This rejection is respectfully traversed.

As previously stated, it is believed that Wilkinson does not teach each and every element of Claim 1. Further, applicants respectfully submit that Wilkinson does not suggest each and every element of Claim 1. Claims 6 and 7 depend from Claim 1. Therefore, Claims 6 and 7 include the features recited by Claim 1. Accordingly, because of the dependency of Claims 6 and 7 on Claim 1, it is respectfully submitted that Wilkinson does teach or suggest the features of Claims 6 and 7.

Hjartarson fails to overcome the significant shortcomings of Wilkinson. Hjartarson is directed to an integrated line card for providing an analog termination for POTS and xDSL signals. The termination presents appropriate impedance at xDSL frequencies for xDSL signals and appropriate impedance at POTS frequencies for POTS signals. Applicants respectfully submit that Hjartarson fails to teach or suggest each and every element required by Claims 6 and 7. In particular, Hjartarson fails to disclose or suggest the claim requirements of (1) applying a discrete multitone signal to an analog circuit; (2) subtracting an output signals of an analog circuit and a digital filter to obtain a difference signal; (3) adjusting the digital filter until the difference signal is a minimum; and (4) applying a discrete multitone signal having a number of uniformly spaced carrier frequencies to a digital filter, wherein the least one of the carrier frequencies is suppressed. Accordingly, it is respectfully submitted that the

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rejection of Claims 6 and 7 under 35 U.S.C. §103(a) should now be withdrawn and the claims allowed.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

JENKINS, WILSON & TAYLOR, P.A.

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